

R E M A R K S

Careful review and examination of the subject application are noted and appreciated.

The present invention concerns a method of verifying a repair of a design. The method generally comprising the steps of, (A) generating an enumeration of a plurality of fuses in the design, (B) compiling data for each of the fuses, wherein the data comprises simulation path data, and (C) simulating the design with at least one of the fuses programmed for the repair to verify the repair.

CLAIM REJECTIONS UNDER 35 U.S.C. §112

The rejection of claims 1, 7, 10, 18 and 19 under 35 U.S.C. §112, first paragraph, is respectfully traversed and should be withdrawn.

The rejection of claims 7, 18 and 19 under 35 U.S.C. §112, second paragraph, is respectfully traversed and should be withdrawn.

The claim 1 step "simulating said design with at least one of said fuses programmed for said repair to verify said repair" is described on page 9, lines 13-19 and FIG. 1 of the specification. One of ordinary skill in the art would understand simulating a design with a programmed fuse in advance of the first

silicon of the design. As such, the step is enabled and the rejection should be withdrawn.

The claim 7 step "generating a repair file that predicts said at least one of said fuses programmed for said repair" is described on page 9, lines 10-13 and FIG. 1 of the specification. One of ordinary skill in the art would understand how to construct a program file using detected errors supplied by another block. Since the claimed step further limits the invention to the defined method, the claimed step is definite. As such, the step is enabled and is definite and thus the rejections should be withdrawn.

The claim 10 step "listing an output of said repair program as a list of coordinates for said at least one of said fuses programmed for said repair in terms of a plurality of logical addresses" is disclosed on page 13, line 5-11 and FIG. 3 of the specification. One of ordinary skill in the art would understand how to program a simulation to generate coordinates of fuses in terms of logical block addresses. As such, the step is enabled and the rejection should be withdrawn.

The claim 18 structure of a first circuit being "further configured to provide an elevation of said fuses at least one level of abstraction in said design" is disclosed on page 11, lines 8-11 and FIG. 2 of the specification. One of ordinary skill in the art would understand that complex circuit designs are commonly defined or arranged schematically in terms of a hierarchy and that elements

within the hierarchy may be moved among levels of abstraction or hierarchy. Since the claim element further limits the invention to the defined structure, the claim element is definite. As such, the element is enabled and is definite and thus the rejections should be withdrawn.

The claim 19 structure of a first circuit being "further configured to collect data relevant to said fuses that are grouped" is disclosed on page 6, line 21-page 7 line 3, page 7, lines 14-18, page 9, lines 6-9 and FIG. 1 of the specification. One of ordinary skill in the art would understand how to design a circuit capable of identifying grouped (e.g., electrically coupled) items from a data set. Since the claim element further limits the invention to the defined structure, the claim element is definite. As such, the element is enabled and is definite and thus the rejections should be withdrawn.

The Office Action has failed to make a *prima facie* case that the pending claims 1, 7, 10, 18 and 19 are not enabled for lack of (i) an explanation why the truth is doubted and (ii) disclosing specific technical reasons. Page 3, section 17, line 4 thru page 5, line 2 of the Office Action quotes *In re Marzochi*, 169 USPQ 367, 370 (CCPA 1971) as stating:

...it is incumbent upon the Patent Office , whenever a rejection on this basis [enablement] is made, explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement. (Emphasis in the Office Action quote)

The Office Action has not provided any explanation why the specification fails to enable the claim elements. The Office Action also asserts, "The specification does not adequately describe this phrase" with no evidence or reasoning. Furthermore, page 4, lines 2-4 of the Office Action quote MPEP 2164.04 stating "specific technical reasons are always required" (emphasis added). No specific technical reasons for the rejection or explanation why the specification fails are provided in the Office Action as required by the MPEP. Therefore, the Office Action has failed to establish a *prima facie* case that the pending claims are not enabled and thus the rejection should be withdrawn. In the alternative, the Examiner is respectfully requested to provide the required specific technical reasons and a concise explanation why the claim elements are not enabled so that the Applicants' representative has some basis to generate a response.

The Office Action has not established a *prima facie* case that the pending claims 7, 18 and 19 are indefinite. A *prima facie* case of indefiniteness generally establishes (1) interpretation of the claims in light of the specification, (2) interpretation of the claims as one of ordinary skill in the art would interpret, and (3) that the limitation(s) in the claims, or the subject matter not in the claims, does not reasonably define the invention. Page 8 of the Office Action only states, "This phrase is not adequately

defined" for each rejected claims. No explanation and no evidence why the claim elements are inadequately defined are provided in the Office Action. The lack of explanation and evidence was asserted on page 11 of the December 16, 2002 Amendment After Final. However, the current Office Action does not appear to dispute the Applicants' earlier assertion. Therefore, the Office Action has failed to establish a *prima facie* case that the pending claims are indefinite and thus the rejection should be withdrawn. In the alternative, the Examiner is respectfully requested to provide evidence and an explanation why the claim elements are considered indefinite so that the Applicants' representative may generate an appropriate response.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

The rejection of claims 1, 5-7, 12-16 and 18-19 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section of the instant application in view of Kablanian et al. '878 (hereafter Kablanian) is respectfully traversed and should be withdrawn.

The rejection of claims 2-3 and 17 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section in view of Kablanian '878 and Tzori '044 is respectfully traversed and should be withdrawn.

The rejection of claim 4 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section in view of Kablanian '878 and Sample et al. '967 (hereafter Sample) is respectfully traversed and should be withdrawn.

The rejection of claims 8-10 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section in view of Kablanian '878 and Higgins et al. '349 (hereafter Higgins) is respectfully traversed and should be withdrawn.

The rejection of claim 11 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section in view of Kablanian '878 and Higgins '349 and Official Notice is respectfully traversed and should be withdrawn.

The rejection of claim 20 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section in view of Kablanian '878 and Official Notice is respectfully traversed and should be withdrawn.

Kablanian teaches a built-in self repair system for embedded memories (Title). Tzori teaches a concurrent hardware-software co-simulation (Title). Sample teaches a method and apparatus for design verification using emulation and simulation (Title). Higgins teaches built-in self-test and self-repair methods and devices for computer memories comprising a reconfigurable memory device (Title). The Official Notice has been

taken that it is well known in the art to write files for future use or to create a permanent record.

The Background of the Invention section of the instant application, Kablanian, Tzori, Sample, Higgins and the Official Notice alone, or in combination, do not appear to teach or suggest every element in the pending claims.

Pending claims 1 (method), 12 (apparatus) and 13 (means) provide simulating a design with at least one of a plurality of fuses programmed for a repair to verify the repair. Assuming, *arguendo*, that the proposed combination of the Background of the Invention and Kablanian would have been obvious (for which the Applicants' representative does not necessarily agree), the proposed combination still does not teach every element of the pending claims. Despite the suggestion on page 9, section 55 of the Office Action, Kablanian does not appear to teach or suggest simulating a design with at least one fuse programmed for a repair to verify the repair. Determining an optimum utilization of redundant memory lines to repair defective memory lines appears to take place before the repair is performed. In contrast, the claims provide verifying the repair after simulating the repair. Therefore, Kablanian and the Background of the Invention of the instant application alone, or in combination, do not appear to teach or suggest simulating a design with at least one of a plurality of fuses programmed for a repair to verify the repair as

presently claimed. As such, the claimed invention is fully patentable over the cited references and the rejection should be withdrawn.

Claim 12 provides a first circuit and a second circuit. Claim 13 provides a means for generating, a means for compiling and a means for simulating. No argument is made in the Office Action that the references teach or suggest a first circuit or a second circuit as presently claimed. No argument is made in the Office Action that the references teach or suggest a means for generating, a means for compiling or a means for simulating as presently claimed. Therefore, the Office Action has failed to establish that the Background section and Kablanian alone, or in combination, teach or suggest every claimed element. As such, the claimed invention is fully patentable over the cited references and the rejection should be withdrawn.

Regarding claim 8, assuming, *arguendo*, that it would have been obvious to combine the teachings of the Background of the Invention, Kablanian and Higgins (for which Applicants' representative does not necessarily agree), the resulting combination does not teach or suggest every element of pending claim 8. Pending claim 8 provides creating a repair program in response to a repair file. In contrast, page 12, item 83 of the Office Action states that Higgins teaches that location information is supplied to a controller for a laser repair device which

achieves a hardware fix. However, the Office Action and Higgins appear to be missing a connection between the claimed repair program and the claimed repair file. If the location information of Higgins teaches the claimed repair program, there is no indication in Higgins that the location information is created in response to a repair file. If the location information of Higgins teaches the claimed repair file, the step of creating a repair program in response to the location information appears to be missing from Higgins. Therefore, the Background section, Kablanian and Higgins alone, or in combination, do not appear to teach or suggest creating a repair program in response to a repair file as presently claimed. As such, the pending claim is fully patentable over the cited references and the rejection should be withdrawn.

Pending claim 17 depends from claim 8 which provides the step of creating a repair program in response to a repair file. Page 12, item 82 of the Office Action admits that the creation of a repair program step from claim 8 is not found in the Background of the Invention of the pending application or in Kablanian by virtue of adding Higgins to the rejection. In contrast, the rejection of claim 17 is based upon Tzori, the Background section and Kablanian, but not Higgins. However, Tzori does not appear to teach or suggest creating a repair program. Therefore, the Background section Kablanian and Tzori alone, or in combination, do not appear to disclose or suggest the step of creating a repair

program in response to a repair file as presently claimed. As such, the claimed invention is fully patentable over the cited reference and the rejection should be withdrawn.

The Office Action makes conflicting assertions in relating specific sentences in the Background of the Invention section of the instant application to the pending claims.

Regarding claims 1, 14-16 and 18-19, page 9, the Office Action make conflicting assertions about the two sentences on page 1, lines 16-20 of the pending specification. In particular, page 9, item 52 of the Office Action states that the two sentences teach compiling data for each one of a plurality of fuses, wherein the data comprises simulation path data. Page 15, item 103 of the Office Action states that the same two sentences teach that the data further comprises schematic path data. Page 15, item 106 of the Office Action states that the same two sentences teach that the data further comprises physical layout data. Finally, page 15, item 109 of the Office Action further states that the same two sentences teach mapping a plurality of co-ordinates of the fuses to a plurality of verilog statements. Since the word "data" cannot simultaneously teach simulation path data and schematic path data and physical layout data, the Background section and Kablanian alone, or in combination, do not appear to teach every claim element. As such, the claimed invention is fully patentable over the cited references and the rejection should be withdrawn.

Regarding claims 18 and 19, page 16, item 116 of the Office Action states that the two sentences on page 1, line 16-20 of the specification teach a structure that provides an elevation of the fuses at least one level of abstraction in a design. Page 16, item 119 of the Office Action states that the same two sentences teach a structure that collects data relevant to the fuses that are grouped. The Office Action provides conflicting arguments for what is taught by page 1, lines 16-20 of the specification. Therefore, the Background section and Kablanian alone, or in combination, do not appear to teach or suggest every claim element. As such, the claimed invention is fully patentable over the cited references and the rejection should be withdrawn.

Regarding claims 5-7 and 10, page 11, item 74 of the Office Action asserts that the sentence on page 1, lines 14-15 of the specification teaches generating a fuse report. Page 12, item 77 of the Office Action states that the same sentence teaches listing physical locations of a device in the design in response to the fuse report. Page 12, item 80 of the Office Action states that the same sentence teaches generating a repair file that predicts at least one of a plurality of fuses programmed for a repair. Finally, page 13, item 91 of the Office Action states that the same sentence teaches listing an output of a repair program as a list of coordinates for at least one of a plurality fuses programmed for a repair in terms of a plurality of logical addresses. Since the

single sentence does not appear to teach four very different steps, the Background section and Kablanian alone, or in combination, do not appear to teach or suggest every claim element. As such, the claimed invention is fully patentable over the cited references and the rejection should be withdrawn.

The Office Action fails to establish a *prima facie* case of obviousness.

"[T]o establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicants."¹ "[T]he factual inquiry whether to combine references must be thorough and searching."² "This factual question ... [cannot] be resolved on subjective belief and unknown authority."³ "It must be based on objective evidence of record."⁴ The Examiner must show that (a) there is some suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references, (b) there is a

¹ *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000) (citing *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)).

² *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001).

³ *In re Lee*, 277 F.3d 1338, 1343-44, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002).

⁴ *Id.* at 1343, 61 USPQ2d at 1434.

reasonable expectation of success, and (c) the prior art reference (or combination of references) teaches or suggests all of the claim limitations as arranged in the claims.⁵

A *prima facie* case of obvious has not been established to combine the teachings of Kablanian with the Background of the Invention. In particular, (i) no evidence of a reasonable expectation of success has been provided and (ii) the asserted motivation does not appear to apply to the present invention. The Office Action is silent regarding a reasonable expectation for success of the proposed combination. Therefore, no *prima facie* case has been established.

Furthermore, the asserted motivation to "determine the optimal utilization" does not appear to apply to the claimed invention. The claimed invention involves verification, thus one of ordinary skill in the art would not appear to be motivated to consider an optimization reference. Office Action must provide clear and convincing evidence of motivation to combine, but instead has only provided four words. Furthermore, the fact that references can be combined is not sufficient to establish obviousness (MPEP 2143.01). Therefore, no *prima facie* case of obviousness has been established in the Office Action. As such, the pending claims are fully patentable over the cited reference and the rejection should be withdrawn.

⁵ M.P.E.P. §2142.

The Office Action does not appear to provide a reasonable motivation to combine Sample with the other references. Page 11, item 71 of the Office Action asserts that the motivation to combine Sample is that a transistor list or layout specification is used to burn fuses. The motivation does not appear to relate to claimed invention. Since no claim elements involve burning fuses to manufacture a device, there is no motivation for one of ordinary skill in the art to consider another reference that teaches such a manufacturing process. Therefore, no *prima facie* case of obviousness has been established to combine Sample for lack of motivation. As such, the claimed invention is fully patentable over the cited reference and the rejection should be withdrawn.

Applicants' respectfully traverse the assertion that statements made in the Background of the Invention section of the instant application constitute admissions of prior art.

Prior art is defined by 35 U.S.C. §102/103 and by admissions made by the applicant (but not Miriam-Webster's Collegiate Dictionary). In the instant application, the Applicants have not made any admissions of what is and is not prior art. Furthermore, Applicants respectfully decline the offer to step into the Examiners shoes to determine which portions of the application are and are not prior art. The Office Action provides several references that allow admissions to be used against the claims after the admission has been made. However, no references are

identified in the Office Action justifying use of applicants words as prior art when no admission has been made. As such, the Office Action has failed to establish a *prima facie* case of obviousness for lack of evidence that the Background section teaches prior art. As such, the claimed invention is fully patentable over the cited references and the rejections should be withdrawn. In the alternative, the Examiner is respectfully requested to identify the statute, rule and/or procedure whereby an admission can be created where none has been made so that the Applicants' representative may generate an appropriate response.

Claims 2-11 and 14-20 depended either directly or indirectly from independent claims 1 and 12, which are believed to be allowable. As such, the presently pending invention is fully patentable over the cited references and the rejection should be withdrawn.

FINALITY OF THE OFFICE ACTION

Applicant's representative respectfully requests reconsideration of the finality of the January 10, 2003 Office Action. MPEP §706.07(a) states:

Furthermore, a second or any subsequent action on the merits in any application or patent undergoing reexamination proceedings will not be made final if it includes a rejection, on newly cited art, other than information submitted in an information disclosure statement filed under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p), of any claim not amended by applicant or patent owner in spite of the fact that

other claims may have been amended to require newly cited art.
(Emphasis added)

The September 23, 2002 Office Action provided new grounds of rejection that were neither necessitated by amendment of the claims or based on an information disclosure statement. Therefore, the MPEP §706.07(a) requires that the current Office Action be non-final, but the current Office Action is not. The assertion on page 2, section 10 that the Applicants responded to the new grounds of rejection by introducing corrective amendments is irrelevant. The Amendment After Final dated December 16, 2002 and the current Response After Final are written under "after final" limitations to place the claims in an allowable condition or in better form for appeal. The Applicants' representative still has not been given an opportunity to respond to the new grounds of rejection per a non-final Office Action. As such, the finality premature and should be withdrawn and the next Office Action, if any, must be non-final.

Accordingly, the present application is in condition for allowance. Early and favorable action by the Examiner is respectfully solicited.

The Examiner is respectfully invited to call the Applicants' representative should it be deemed beneficial to further advance prosecution of the application.

If any additional fees are due, please charge our office
Account No. 50-0541.

Respectfully submitted,

CHRISTOPHER P. MAIORANA, P.C.

Christopher P. Maiorana
Registration No. 42,829
24025 Greater Mack, Suite 200
St. Clair Shores, MI 48080
(586) 498-0670

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